

## **DECISION DOCUMENT FOR THE APPROVAL OF OHIO'S SUBMISSION OF THE STATE'S INTEGRATED REPORT WITH RESPECT TO SECTION 303(d) OF THE CLEAN WATER ACT (CATEGORY 5 WATERS)**

U.S. EPA has conducted a complete review of Ohio's 2010 Section 303(d) list and supporting documentation and information, and based upon this review U.S. EPA has determined that Ohio's list of assessment units (AU's) still requiring total maximum daily loads (TMDLs) meets the requirements of Section 303(d) of the Clean Water Act (CWA or Act), and U.S. EPA's implementing regulations. Therefore, U.S. EPA hereby approves Ohio's 2010 Section 303(d) list. Ohio's list of AUs still requiring TMDLs appears in Category 5 of the Ohio 2010 Integrated Water Quality Monitoring and Assessment Report (2010 Integrated Report or 2010 IR), and U.S. EPA's approval extends only to the AUs in Category 5 of the Integrated Report. The statutory and regulatory requirements, and U.S. EPA's review of Ohio's compliance with each requirement, are described in detail below.

### **I. Statutory and Regulatory Background**

#### **Identification of Water Quality Limited Segments (WQLSs) for Inclusion on Section 303(d) List**

Section 303(d)(1) of the Act directs states to identify those waters within its jurisdiction for which effluent limitations required by Section 301(b)(1)(A) and (B) are not stringent enough to implement any applicable water quality standards, and to establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters. The Section 303(d) listing requirement applies to waters impaired by point and/or nonpoint sources, pursuant to U.S. EPA's long-standing interpretation of Section 303(d).

U.S. EPA regulations provide that states do not need to list waters where the following controls are adequate to implement applicable standards: (1) technology-based effluent limitations required by the Act; (2) more stringent effluent limitations required by state or local authority; and (3) other pollution control requirement required by state, local, or federal authority, as found in 40 C.F.R. §130.7(b)(1).

#### **Consideration of Existing and Readily Available Water Quality-Related Data and Information**

In developing Section 303(d) lists, states are required to assemble and evaluate all existing and readily available water quality-related data and information, including, at a minimum, consideration of existing and readily available data and information about the following categories of water: (1) waters identified as partially meeting or not meeting designated uses, or as threatened, in the state's most recent Section 305(b) report; (2) waters for which dilution calculations or predictive models indicate nonattainment of applicable standards; (3) waters for

which water quality problems have been reported by government agencies, members of the public, or academic institutions; and (4) waters identified by the states as impaired or threatened in a nonpoint assessment submitted to U.S. EPA under Section 319 of the Act (40 C.F.R. §130.7(b)(5)). In addition to these minimum categories, states are required to consider any other data and information that is existing and readily available. U.S. EPA's 1991 Guidance for Water Quality-Based Decisions (1991 Guidance), describes categories of water quality-related data and information that may be existing and readily available. While states are required to evaluate all existing and readily available water quality-related data and information, states may decide to rely or not rely on particular data or information in determining whether to list particular waters.

In addition to requiring states to assemble and evaluate all existing and readily available water quality-related data and information, U.S. EPA regulations require states to include as part of their submissions to U.S. EPA documentation to support decisions to rely or not rely on particular data and information and decisions to list or not list waters. 40 C.F.R. §130.7(b)(6) states that such documentation needs to include, at a minimum, the following information: (1) a description of the methodology used to develop the list; (2) a description of the data and information used to identify waters; (3) a rationale for any decision to not use any existing and readily available data and information; and (4) any other reasonable information required by the Region.

### **Priority Ranking**

U.S. EPA regulations also clarify and interpret the requirements in Section 303(d)(1)(A) of the Act that states establish a priority ranking for listed waters. 40 C.F.R. §130.7(b)(4) requires states to prioritize waters on their Section 303(d) lists for TMDL development, and also to identify those AUs targeted for TMDL development in the next two years. In prioritizing and targeting waters, states must, at a minimum take into account the severity of the pollution and the uses to be made of such waters and shall identify the pollutants causing or expected to cause violations of the applicable water quality standards. As long as these factors are taken into account, states have discretion in prioritizing waters for TMDL development. States may consider other factors relevant to prioritizing waters for TMDL development, including immediate programmatic needs, vulnerability of particular waters as aquatic habitats, recreational, economic and aesthetic importance of particular waters, degree of public interest and support, and state or national policies and priorities found in 57 Fed. Reg. 33404, 33045 (July 24, 1992), and U.S. EPA's 1991 Guidance.

### **Identification of Waters and Consideration of Existing and Readily Available Water Quality-Related Data and Information**

The Ohio 303(d) list of prioritized impaired waters (i.e., Category 5 of the 2010 Integrated Report) is contained in Section L4 of the 2010 Integrated Report, and is in compliance with Section 303(d) of the Act and 40 C.F.R. §130.7. U.S. EPA has reviewed Ohio's description of the data and information it considered, its methodology for identifying waters, and considered

any other relevant information including information the State submitted to U.S. EPA in response to requests for additional information. U.S. EPA concludes that the State of Ohio properly assembled and evaluated all existing and readily available data and information, including data and information relating to the categories of waters specified in 40 C.F.R. § 130.7(b)(5).

U.S. EPA has also determined that the State properly listed waters with nonpoint sources causing or expected to cause impairment, consistent with Section 303(d) of the Act and U.S. EPA guidance. Section 303(d) lists are to include all water quality limited segments (WQLSs) still needing TMDLs, regardless of whether the source of the impairment is a point and/or nonpoint source. U.S. EPA's long-standing interpretation is that Section 303(d) applies to waters impacted by point and/or nonpoint sources. In *Pronsolino v. Marcus*, the Ninth Circuit Court of Appeals held that Section 303(d) of the CWA authorizes U.S. EPA to identify and establish total maximum daily loads for waters impaired by nonpoint sources.<sup>1</sup>

In 2003, Ohio passed a credible data law (ORC 6111.50 to 6111.56), that establishes requirements for the use of external data. That law requires the Director of Ohio EPA to adopt rules that would, among other things, require that data be collected by a qualified data collector and be compliant with the specifications of "Level 3 credible data," in order to be used for listing waters under Section 303(d). Those rules, effective March 24, 2006, are located at Chapter 3745-4 of the Ohio Administrative Code (OAC). Within Section D5.1 of the 2010 Integrated Report is the memorandum dated July 22, 2009, sent by Ohio to solicit Level 3 data from external sources and all Level 3 Qualified Data Collectors (QDC). Besides Ohio EPA's own data, external sources include State and County health departments, universities, US Geological Survey, Northeast Ohio Regional Sewer District (NEORSDD), permittees, compliance databases, and atrazine registrants. The data collectors either received intensive training and certification from Ohio EPA to become QDC, or the entities have submitted data in the past.

As part of its ongoing monitoring and assessment program, the State developed a five-year rotating basin plan that divides the State into 25 areas each comprised of a group of subbasins within major river basins. Ohio EPA estimates that under the current funding levels monitoring takes more than 10 years to complete throughout the State. After the State completes the monitoring in one of the assessment areas, it collects the data and assesses the biological, chemical, and physical condition of the AU.

The Ohio River data collection is through the Ohio River Sanitation Commission (ORSANCO). The Commission was established in 1948 and operates programs to improve water quality (through wastewater discharge standards, biological assessments, monitoring chemical and

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<sup>1</sup>*Pronsolino et al. v. Nastri et. al.*, 291 F. 3d 1123 (9<sup>th</sup> Cir, 2002); see also U.S. EPA's 1991 Guidance; and National Clarifying Guidance for 1998 Section 303(d) Lists, August 27, 1997.

physical properties), coordinates emergency response for spills or accidental discharges, and promotes public participation in volunteer programs. Ohio defers to ORSANCO's analysis and listing of impaired Ohio River segments and is discussed in greater detail later in this document.

## **II. Analysis of Ohio's Submission**

### **Listing Methodology and Reporting**

U.S. EPA issued guidance for integrating the development and submission of 2002 Section 305(b) water quality reports and Section 303(d) lists of impaired waters in U.S. EPA's 2002 Integrated Water Quality Monitoring and Assessment Report Guidance, November 19, 2001 (2001 Guidance). The 2001 Guidance was superseded by U.S. EPA's Guidance for 2004 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d) and 305(b) of the Clean Water Act, July 21, 2003 (2003 Guidance). The 2003 Guidance recommends that states develop an integrated report of the quality of their waters by placing all waters into one of five assessment categories. On August 12, 2005, the 2006 Integrated Report Guidance (2006 IRG) became available (USEPA 2005). Ohio followed the approach set out in the 2006 IRG. In a memorandum dated October 12, 2006, from the Office of Wetlands, Oceans, and Watersheds, all Regions were instructed to follow the 2006 IRG in preparing the 2008 IR. In addition to the 2006 memorandum there was supplemental guidance in 2008, and a memorandum dated May 5, 2009, *Information Concerning 2010 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions*. These memorandums and guidance were also available for the preparation and review of Ohio's 2010 Integrated Report. The waterbodies in Category 5, Section L4 of the 2010 Integrated Report, constitute the State's Section 303(d) list.

Significant changes were made to some elements of the listing framework, resulting in changes to the listing. There are significant changes to the 2010 list compared to the 2008 list for several reasons. Details may be found in many sections of the 2010 Integrated Report, and are summarized in Section A of the 2010 Integrated Report, but several key modifications are highlighted and discussed by Section below. The most significant overall changes are due to the resizing of the watersheds, listing by designated use rather than assessment unit, individual use methodology changes (recreation and human health), and the addition of new data from 2007 and 2008.

- Section A:
  - List Category definitions - The five assessment categories are described in the 2001 Guidance, and shown below in Table A-1 from Section A of the Ohio 2010 IR. Ohio has added subcategories to further clarify the listing. For example, when OEPA has retained a category from the 2008 IR with no re-analysis, "x" is added after the category. Analysis with an "h" indicates historical data were used. (Table A-1 on the following page). Use of historical data occurs when, for example, the most recent data are too old according to the methodology, but the AU remains on the list because it

was previously listed and a TMDL has not been completed (i.e., the data may be old but there is no basis for delisting).

- Comparison of reporting methodology detail map (Figure A-1 below) shows the new refinement of assessment, based on changing the watershed assessment unit size from an 11 Hydrologic Unit Code (HUC) to a 12 HUC. The listing changes due to this resizing are discussed later in this section. As shown in Figure A-1, the results of this resizing and conducting watershed assessments at a smaller scale range from "No data available", to identifying "more impairment", to "attains WQS."

Table A-1. Category definitions for the 2010 Integrated Report and 303(d) list.

Category <sup>1</sup>		Subcategory	
0	No waters currently utilized for water supply		
1	Use attaining	h	Historical data
		x	Retained from 2008 IR
2	Not applicable in new (2010) Ohio system		
3	Use attainment unknown	h	Historical data
		i	Insufficient data
4	Impaired; TMDL not needed	x	Retained from 2008 IR
		A	TMDL complete
		B	Other required control measures will result in attainment of use
		C	Not a pollutant
		h	Historical data
		n	Natural causes and sources
5	Impaired; TMDL needed	x	Retained from 2008 IR
		M	Mercury
		h	Historical data
		x	Retained from 2008 IR

<sup>1</sup> Shading indicates categories defined by U.S. EPA; additional categories and subcategories are defined by Ohio EPA.

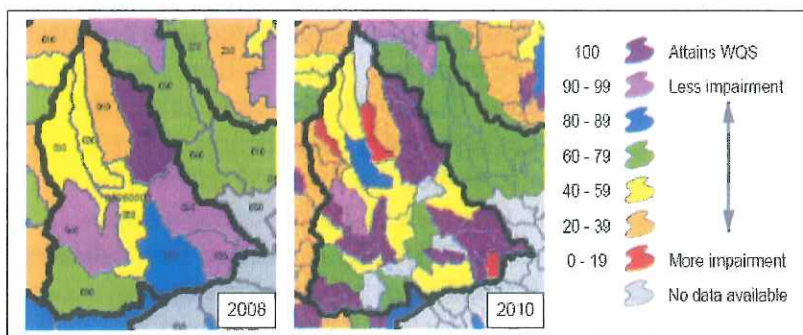


Figure A-1. Comparison of reporting detail in 2008 and 2010.

- Size – Section A of the 2010 IR also describes the conversion from 11-digit HUCs to smaller 12-digit HUCs. The conversion provides data on a finer scale and allows for better reporting of watershed impairments and improvements:
  - There are now 1538 principal watershed assessment units (WAUs) within the State represented by 12-digit HUCs (formerly 331);
  - There are now 38 large river assessment units (LRAUs) (formerly 23); the change reports watersheds on an approximate 25-45 mile length, divided at



HUC boundaries or major tributaries, rather than the various lengths in the past, which ranged from 8 to 77 miles; and,

- Assessment units have not changed in the Lake Erie areas nor the mainstem of the Ohio River, though there may be listing changes based on other criteria.
- Due to the large volume of information generated with the new smaller AUs, the Ohio has the summaries online rather than hardcopy at:

[http://epa.ohio.gov/dsw/tmdl/2010IntReport/assessment\\_summaries.aspx](http://epa.ohio.gov/dsw/tmdl/2010IntReport/assessment_summaries.aspx).

- Section E – Human Health: the assessment methodology changed in several ways. First, Ohio changed from mercury to methyl mercury evaluation in fish tissue, using the US EPA calculation methods found in Section 4.3.2 of the document Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion, Final, (U.S. EPA Office of Science and Technology, EPA-823-R-09-002, January 2009). For PCBs, the 2008 IR used average fish tissue values by species, whereas the 2010 evaluation used a weighted average of all fish tissue values. Finally, the spatial change from HUC 11 to HUC 12 changed some of the listings.
- Section F – Recreation Use: The greatest change to recreational use methodology is the adoption of *E. coli* water quality standards, so the bacteria indicator will be *E. coli* rather than fecal coliform. Another major change is that a geomean calculation was used rather than a percentile or a single sample maximum for impairment; the geomean will be calculated using the values from the six month recreational season, rather than the mean of samples collected within 30 days. (The 235cfu/ml *E. coli* single sample maximum standard continues to be used as a listing criterion for beaches as required by the 2004 federal BEACH Act rule.) Data are collected on a site-by-site basis to fine-tune the approach rather than an aggregated data approach that in the past determined an entire AU to be impaired. There will be less *E. coli* data available for the 2010 IR, because historic *E. coli* samples were primarily collected by the state, and NPDES permittees reported fecal coliform. *E. coli* reporting will be phased into NPDES permits as they are renewed and will be available for the next listing cycle. Further, Ohio has begun reporting using a recreational use index score which is new in the 2010 IR. A score of 100 indicates attainment of the recreation use, less than 100 indicates an impairment, while scores closer to zero indicate the greatest impairment. A score between 90 and 100 show that the criteria are close to being attained. Primary contact use has been further subdivided, based on use intensity, into Class A, B, and C.

Table F-8 below shows the trends for the last several listing cycles; for the 487 AUs assessed for the 2010 report, 13% fully supported recreational use while 87% did not. This reduction in recreational use support is attributed to many changes in methodology: a change in calculations, more samples (487 in 2010 compared to 166 in 2008 as shown in Table F-8), and changing the size of the HUCs, but not a decline in Ohio's water quality.

Table F-8. Overall differences in the assessment of recreation use attainment, 2004 to 2010.

	2004 Report		2006 Report		2008 Report		2010 Report	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Total AUs	354	100	354	100	354	100	1576	100
Assessed	166	47	154	43	166	47	487	31
Not Assessed	188	53	200	57	188	53	1089	69
Attaining Recreation Use	56	33 <sup>a</sup>	57	37 <sup>a</sup>	63	38 <sup>a</sup>	65	13 <sup>a</sup>
Impaired Recreation Use	110	67 <sup>a</sup>	97	63 <sup>a</sup>	103	63 <sup>a</sup>	422	87 <sup>a</sup>

<sup>a</sup> Percentage of AUs reported as attaining the recreation use and not attaining the recreation use are based on the total AUs that were assessed (e.g. 487 in the 2010 analysis).

Section G – Aquatic Life Use (ALU): the basic assessment methodology used for assessing ALU (habitat, fish, and macroinvertebrate assessment) did not change for the 2010 IR, but some of the listed segments have newly derived scores based on the resegmentation from HUC 11 to HUC 12. Other spatial considerations affected the ALU methodology, including the drainage area associated with the assessed sites, spatial proximity of the sites being assessed to each other within the watershed, land use consistency among sampling locations, and location of significant dischargers within the WAU. Table G-1 below from the 2010 Integrated Report indicates that overall 14.7% of the sites assessed for the three Lake Erie AUs are in full attainment for aquatic life use. In the last reporting cycle, that number was 10.2%. Overall there was an increase in attainment in WAUs from 54.7% to 58.5%, and in Large River AUs from 78.7% to 93.1%. The increase in attainment of the large rivers was due primarily to the assessment of many large rivers since the last listing cycle. Section G3 listed these rivers as the Little Miami River (2 LRAUs), Mohican River, Walhonding River, Licking River, Whitewater River, and Great Miami River (uppermost LRAU).

Table G-1. Summary of aquatic life use assessment for Ohio's watershed (HUC11 and HUC12), large river, and Lake Erie assessment units: 2002-2010 Integrated Report cycles.

	2002 (1991-2000)	2004 (1993-2002)	2006 (1995-2004)	2008 (1997-2006)	2010 (1999-2008)
<b>HUC11 Watershed AUs (331)</b>					
No. AUs Assessed (% total)	224 (68%)	225 (68%)	212 (64%)	218 (66%)	221 (67%)
No. Sites Assessed	3272	3620	3785	4030	4200
<b>Average AU Scores</b>					
Full Attainment	46.6	48.3	52.5	54.7	58.5
Partial Attainment	25.2	23.6	22.6	22.4	21.2
Non-Attainment	28.2	28.1	24.9	22.9	20.3
<b>HUC12 Watershed AUs (1538)</b>					
No. AUs Assessed (% total) <sup>1</sup>					999 (65%)
No. Sites Assessed					4200
Average AU Score <sup>2</sup>					56.7
<b>Large River AUs (23 rivers/38 AUs totaling 1226.7 Miles)</b>					
No. Rivers (AUs) Assessed	22	21	17	16	18 (30)
No. Sites Assessed	422	425	374	278	265
No. Miles Assessed (% miles)	905 (70%)	918 (71%)	873 (68%)	850 (66%)	852 (69%)
% Miles Full Attainment	62.5	64.0	76.8	78.7	93.1
% Miles Partial Attainment	23.0	21.4	15.1	13.0	5.5
% Miles Non-Attainment	14.5	14.6	8.1	7.4	1.4
<b>Lake Erie AUs (3)</b>					
No. AUs Assessed	3	3	3	3	3
No. Sites Assessed	92	111	93	49	34
% Sites Full Attainment	12.0	18.0	19.4	10.2	14.7
% Sites Partial Attainment	13.0	14.4	16.1	22.4	17.7
% Sites Non-Attainment	75.0	67.6	64.5	67.4	67.6

<sup>1</sup> Statistics based on direct assessment of HUC12 AUs with data collected between 2005 and 2008 (n=545) and HUC11 extrapolated assessment of HUC12 AUs with data collected between 1998 and 2004 (n=454).

<sup>2</sup> Statistic based on the average of 999 AU scores derived as explained in Section G2.2.

- Section H – Public Drinking Water Supply Use: Nitrates and pesticides (atrazine) are the main indicators measured. Ohio is in the process of finalizing criteria for the



Cryptosporidium indicator, so it is not yet used for listing purposes. Sampling was formerly only from stream intakes; in this cycle, sampling includes lakes and WAUs that have surface waters that are a drinking water source utilized by a public water system. The assessments continue to include a "watch list" of waters with elevated levels of contaminants that will be targeted for additional sampling.

- Section I – Considerations for Future Lists:
  - Wetlands: Section I of the 2010 IR states that Ohio adopted wetland water quality standards in 1998. Currently, the State has proposed a new rule package that includes wetland biological criteria that would establish benchmarks, focusing on ecological integrity as measured by vascular plants and/or amphibians. For this listing cycle, Ohio conducted wetland assessment methodology studies in 1) the Cuyahoga River watershed and 2) an urban wetland study in central Ohio. The methodology used a targeted approach for the Cuyahoga study area, and a random sample approach for central Ohio urban areas, respectively. The wetland assessments attempt to quantify the functionality of a wetland, including capacity of a wetland to assimilate additional hydrologic change, nutrients, or sediments. Ohio used several "levels" of assessment and came to conclusions based on wetlands conditions, stressors, amphibian breeding habitat, and a Vegetation Index of Biological Integrity (IBI). Based on Level 2 assessment, about 60% of urban wetlands assessed were in poor to fair condition, and about 40% in good to excellent condition. Level 3 IBI urban wetland results were 68% in poor to fair condition, and 32% in good to very good condition. Overall Ohio believes that urban wetlands are very functional at a "fair" rating, and it is not believed that lower standards need to be developed for an urban setting; more than half provide ecological services.
  - Inland Lakes: Section I of the 2010 IR states that the methodology for inland lakes is in the planning process. After many years of decreased monitoring, in 2005 Ohio increased its lake assessments. Then in the 2007 field season, Ohio had 19 lakes included in the National Lakes Survey (USEPA sponsored). The effort began renewed lake sampling, and Ohio is now sampling an average of about 5 inland lakes per year. For the 2010 listing cycle, Ohio did not have the available resources for the surveying of lakes, but a State Inland Lakes Team was formed in the interim. There are also plans to commence with lake surveys in the 2010 field season. New sampling techniques used may be helpful to the established sampling protocol. Inland lakes are included in listings for the Human Health, Recreation, and Drinking Water uses. A rulemaking is needed to establish an aquatic life use and criteria for lakes before listings can be established. The rulemaking is underway and aquatic life listings for lakes may be possible in the 2012 IR.
  - Section J – Addressing Waters Not Meeting Water Quality Standards: A significant modification to the 2010 IR is that impairments are now listed by the four designated uses, rather than by the entire AU; a segment may be



listed specifically for human health, aquatic life, recreation, or public water supply uses, and will not have the AU listed where there are no data for that use. Though there are many segments that became delisted as a result of the change, the smaller assessment units and listing by individual use results in a 17-fold increase in detailed reporting "results" from 357 to 6,316 to provide a more accurate picture of the water quality or impairment. Figure J-4 below shows the methodology. For the HUC 12 resegmentation shown in the arrow, that AU is listed for ALU in Category 5 (303(d) list), but is not on the list for recreational, human health, nor public drinking water supply uses.

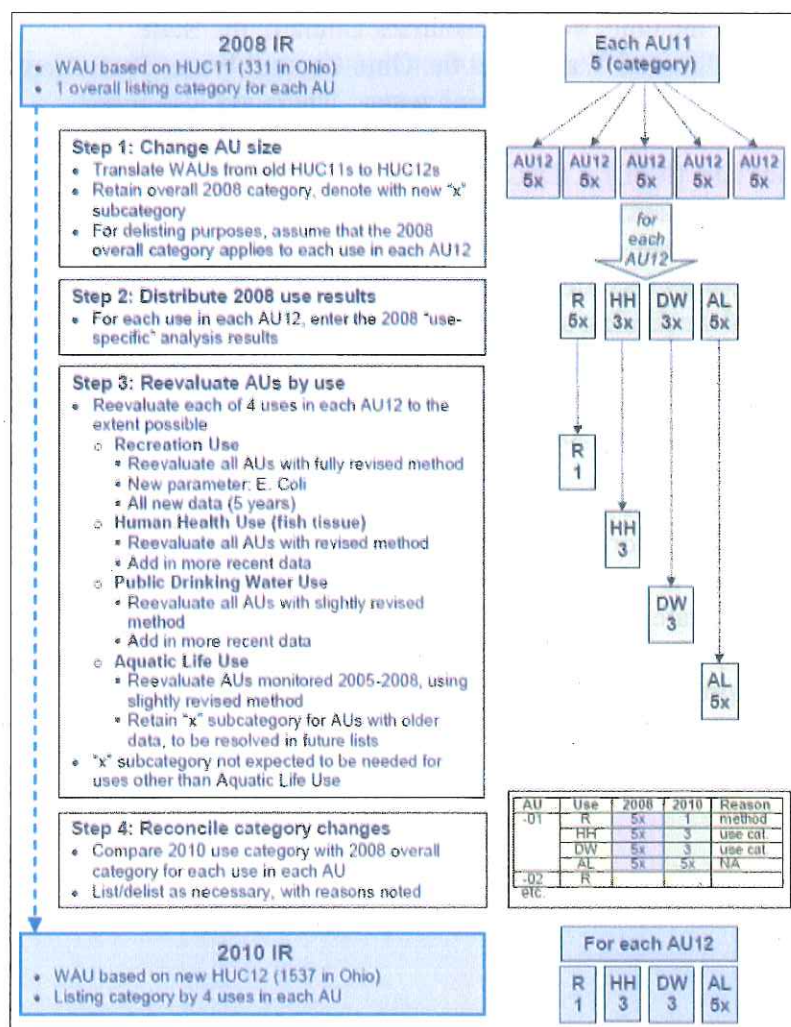


Figure J-4. Steps to transform 2008 list into 2010 list.

- Section L - The 303(d) list (Category 5) is located in Section L4 of the 2010 Integrated Report. The status and reporting category for each of the 1538 WAUs are listed in Section L1, and the status and reporting category for the 38 LRAUs are listed in Section L2 of the 2010 Integrated Report. For the near shore of Lake Erie (i.e.,

within 100 meters of the shoreline), the Integrated Report includes three AUs (i.e., Western Basin Shoreline, Islands Shoreline, and Central Basin Shoreline), that are listed in Section L3 of the 2010 Integrated Report. The three Lake Erie AUs correspond to the adjacent HUCs along the shoreline.

- Section N – Ground water protection in Ohio is focused on 1) raw groundwater data to measure the long term changes in the three major aquifer systems (sand and gravel, sandstone, and carbonate aquifers), and 2) water potentially used for public drinking water supply. There are not any statewide groundwater standards, so primary maximum contaminant levels (MCL) or secondary maximum contaminant levels (SMCL) for drinking water are used. There are already several groundwater programs in place, including the Ohio Water Resources Council, the State Coordinating Committee on Ground Water, and the Ohio Ground Water Protection Programs to monitor, evaluate, and protect ground water. There are also many entities that report and summarize ground water contamination by facility. There is a federal National Priorities List (NPL), CERCLIS (details not available), DOD/DOE, Leaking Underground Storage Tanks (LUST), RCRA Corrective Action, and Underground Injection tracking the contamination, shown in Table N-2 below is taken from the 2010 IR. Sources include fertilizer application, and application of manure and sludge, material stockpiles, storage tanks, surface impoundments, landfills, septic systems, injection wells, hazardous waste sites, suburban/urban runoff, Concentrated Animal Feeding Operations, land application, mining and mine drainage, salt storage and road salting, spills and leaks.

Ohio has also presented Table N-4A which includes all the PWS, the chemical measured, the standard type (MCL or SMCL), the major aquifer, and status (impaired or on the watch list). This table is incorporated by reference from Section N of the 2010 IR. Overall the ground water supply in Ohio is stable but continued protection is necessary. There are many alternatives for managing the anthropogenic sources of contamination including improving BMPs, siting criteria, and design parameters. Ohio will focus future efforts on sensitive aquifers.

Table N-2. Ground water contamination summary.

Hydrogeologic Setting: Statewide  
Data Reporting Period: As of July, 2009

Source Type	Number of sites	Number of sites that are listed and/or have confirmed releases	Number of sites with confirmed ground water contamination	Contaminants
NPL	33	33	30	Mostly VOCs and heavy metals; also, SVOCs, PCBs, PAHs and others
CERCLIS (non-NPL)	386	NA	NA	Varied
DOE/DOE	105 <sup>a</sup>	68	68	Varied
LUST	~30,000 <sup>b</sup>	~5,000	~700 <sup>c</sup>	BTEX
RCRA Corrective Action	167	167	167	VOCs, heavy metals, PCBs, and others
Underground Injection	Class: I - 10 II - 370 III - 46 IV - 0 V - 50,000+	0 0 0 0 NA	0 0 0 0 NA	
State Sites	604 <sup>a</sup>	512	218 <sup>d</sup>	Varied
Nonpoint Sources	NA	NA	NA	

Notes:

- <sup>a</sup> NA - Numbers not available
- <sup>b</sup> Includes DOE, DOD, FUSRAP and FUD sites
- <sup>c</sup> Includes active LUST sites and closed LUST sites (where the leaking tank has been removed and the contamination remediated). Source: Ohio's Bureau of Underground Storage Tank Regulations
- <sup>d</sup> Facilities in Tier 2 or Tier 3 cleanup stages. Source: Ohio's Bureau of Underground Storage Tank Regulations
- <sup>e</sup> Class II and Class III injection wells regulated by the Ohio Department of Natural Resources. Class IV injection wells are illegal in Ohio. The total number of Class V injection wells in Ohio is unknown
- <sup>f</sup> Facilities in Ohio EPA's Ground Water Impacts database
- <sup>g</sup> The facility is considered to be contaminating ground water if the "Uppermost Aquifer" is noted to be impacted, found in Ohio EPA's Ground Water Impacts database

Figure A-7 below is taken from the 2010 Integrated Report and is a progress report toward Ohio's "80% by 2010", which represents 80% of the state's waters achieving full attainment of ALU. The goal was established in the early 1990's as an interim target toward full attainment. Over the years, there has been an overall increase in attainment. Section A of the 2010 Integrated Report states that Ohio has reached 93.1% of "80% by 2010" for large rivers, a 58.5% average watershed score, and 70.8% of the principal streams and large rivers (draining 50 square miles or more). These data are available in Table B-3 of the IR and shown in the plots below. The marked increase in attainment of the large rivers was due primarily to the assessment of the Little Miami River, Mohican River, Walhonding River, Great Miami River (upper LRAU), Licking River, and Cuyahoga River since the last listing cycle.

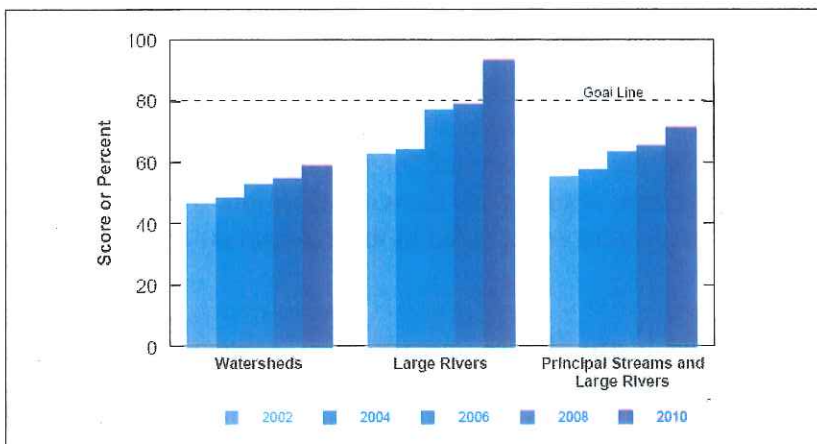


Figure A-7. Final accounting of the "80 by 2010" aquatic life use goal.

Ohio has new ten year goals for 2020 which are summarized below in Table A-7 (Table created for this document, not taken from the original IR). The goals are measured from the current 2010 benchmark. The primary goals are related to attainment of ALU and secondary goals are monitoring, assessment and redesignation of waters.

Table A-7.

Goals and benchmarks	LRAU	WAU	Monitor and reassess	redesignation
ALU attainment goal for 2020	100%	80%	All 38 LRAUs in 23 rivers	Designate an additional 75 mi WWH to EWH
Current ALU 2010 (principal streams & rivers)	93.1%	61.3%	27 segments/16 rivers	297.48 current miles

### Ohio River Listing

The AUs associated with the main stem of the Ohio River are assessed by the Ohio River Sanitation Commission (ORSANCO), which reports its findings in a Section 305(b) report. ORSANCO is an interstate agency charged with abating existing pollution in the Ohio River Basin and preventing future degradation of its waters. ORSANCO was established in 1948 through the signing of the Ohio River Valley Water Sanitation Compact by representatives of the eight member states. Through this Compact, ORSANCO has been given authority to develop the Section 305(b) report for the Ohio River. Ohio participates in the ORSANCO workgroup to promote consistency between 305(b) reporting and 303(d) listing. In the past, Ohio EPA has narratively incorporated ORSANCO's listing of impaired waters into its Integrated Report for those portions of the Ohio River located within the State of Ohio. Section D4 of the 2010 Integrated Report states that the ORSANCO has listed the impaired segments of the Ohio River in its Section 305(b) report, and that Ohio EPA defers to that list of impaired segments found in the 2008 *Biennial Assessment of Ohio River Water Quality Conditions* (ORSANCO 2008). Ohio incorporates these by reference into its 303(d) list.

### Lake Erie Listings

The 2010 Integrated Report assesses the aquatic life use status of the Lake Erie shoreline in three assessment units: western basin nearshore, central basin nearshore, and islands. These three AUs are described as the "nearshore" as being within 100 meters of the shoreline. The term "lacustrary" specifies the zone where Lake Erie water levels have intruded into tributary river channels. The aquatic life use status of a lacustrary is included in the assessment of the tributary river.

Ohio used narrative standards to determine aquatic life use impairments for the nearshore and lacustrary zones. In 1997, Ohio completed *Development of Biological Indices Using Macroinvertebrates in Ohio Nearshore Waters, Harbors, and Lacustraries of Lake Erie in Order to Evaluate Water Quality*. In 1999, Ohio produced *Biological Monitoring and an Index of Biotic Integrity for Lake Erie's Nearshore Waters*. The data in these documents provide a foundation to establish numeric biocriteria for aquatic life in the Lake Erie AUs. Attainment of



recreational water quality standards for the three Lake Erie AUs was based upon examination of *E. coli* data provided by the Ohio Department of Health; the lake was sampled more frequently than inland lakes. For Lake Erie beaches in this reporting cycle, 126 cfu/100 ml is the seasonal geometric mean standard and the single sample maximum is 235cfu/ml.

All three Lake Erie AUs remain in Category 5 with significant impairment of sites due primarily to tributary loadings of nutrients, sediment, and the resultant growth of exotic species and blue-green algal blooms. There was no new sampling between the 2008 and 2010 IR, but some impairment statistics changed because some values were dropped out of the analysis as "historical" data. Future reporting in the next IR cycle will include National Aquatic Resource Survey (NARS) to take place during the summer of 2010. Fifty sites have been selected in the Western Basin and include the Maumee Bay, Sandusky Bay, and also sites from the Lake Erie Islands and Central Basin. The Ohio Lake Erie Phosphorus Task Force is currently completing a report in March 2010. The effort was to identify sources of the increasing phosphorus load and whether it is linked to increasing algal blooms. A number of recommendations will be made to attempt to decrease nonpoint phosphorus loads, particularly to the western basin. The Lake Erie Lakewide Management Plan (LaMP) is developing a management strategy for the next several years.

In Section C of the IR, Ohio recognizes the impairments and decline in water quality that the exotic species and algae have caused in Lake Erie. There is great concern because there appears to be an increase in phosphorus and many species of algae that were not previously present, including *Cladophora*, *Microcystis*, and *Lyngbya wollei*. It is unclear whether these are new invasives or that the conditions are such that they can flourish. The sources of contaminants are municipal point sources, combined sewer overflows, non-irrigated crop production, urban runoff/storm sewers, streambank modification/destabilization, habitat modifications other than hydromodification, and other undetermined sources. Section D6-6 has Ohio's responses to many questions concerning the water quality in Lake Erie. The Maumee and Sandusky Bays, which drain into the Western Erie Basin AU, are scheduled for both monitoring and TMDLs; the Maumee TMDL has begun.

### **Water Quality Standards**

Ohio water quality standards have two elements: designated uses, and numerical or narrative criteria designed to protect and measure attainment of the uses (OAC 3745-1-07(A)). Ohio EPA assigns each water body a use designation, and a water body may have one or more use designations. Each water body in the State is assigned an aquatic life habitat use designation, and may also be assigned a water supply use designation and/or one recreational use designation (OAC 3745-1-07(A)(1)). Ohio has multiple subcategories or tiers in its aquatic life use (coldwater, seasonal salmonid, exceptional warmwater, warmwater, and modified warmwater habitats, and limited resource waters) designation system (OAC 3745-1-07(B)(1)), and three categories for both the recreational (bathing waters, primary contact and secondary contact recreation) and water supply (public, agricultural, and industrial) use designations. In addition, the Ohio Administrative Code contains statewide chemical-specific criteria for the support of use

designations (OAC 3745-1-07(A)(2)). The following table is taken from Section D2 of the 2010 Integrated Report, and shows the designated uses in Ohio's water quality uses, criteria, and minimum data requirements for the 2010 IR. Human health use is also included as one of the four designated uses and there are criteria for six contaminants: mercury, PCBs, chlordane, DDT, mirex and hexachlorobenzene.

Table D-1. Ohio water quality standards in the 2010 Integrated Report.

Beneficial Use Category	Key Attributes (why a water would be designated in the category)	Evaluation status in 2010 Integrated Report
<i>Categories for the protection of aquatic life</i>		
Coldwater Habitat	native cold water or cool water species; put-and-take trout stocking	Assessed on case by case basis
Seasonal Salmonid Habitat	supports lake run steelhead trout fisheries	No direct assessment, streams assessed as EWH or WWH
Exceptional Warmwater Habitat	unique and diverse assemblage of fish and invertebrates	65% of the Watershed Assessment Units and 79% of the large River Assessment Units fully assessed using direct comparisons of fish and macroinvertebrate community index scores to the biocriteria in Ohio's WQS; sources and causes of impairment were assessed using biological indicators and water chemistry data
Warmwater Habitat (WWH)	typical assemblages of fish and invertebrates	
Modified Warmwater Habitat	tolerant assemblages of fish and macro-invertebrates; irretrievable condition precludes WWH	
Limited Resource Waters	fish and macroinvertebrates severely limited by physical habitat or other irretrievable condition	Assessed on case by case basis
<i>Categories for the protection of recreational activities</i>		
Bathing Waters	Lake Erie (entire lake); for inland waters, bathing beach with lifeguard or bathhouse facility	Lake Erie public beaches fully evaluated; nine inland lakes evaluated
Primary Contact Recreation	waters suitable for one or more full-body contact recreation activity such as wading and swimming; three classes are recognized, distinguished by relative potential frequency of use	31% of the assessment units assessed using applicable PCR geometric mean <i>E. coli</i> criteria
Secondary Contact Recreation	waters rarely used for recreation because of limited access; typically located in remote areas and of very shallow depth	Assessed as part AU using applicable SCR geometric mean <i>E. coli</i> criteria
<i>Categories for the protection of water supplies</i>		
Public Water Supply	waters within 500 yards of all public water supply surface water intakes, publicly owned lakes, waters used as emergency supplies	Sufficient data were available to assess 34% of the 132 assessment units with PDWS use assessed using chemical water quality data; only waters with active intakes were assessed
Agricultural Water Supply	water used, or potentially used, for livestock watering and/or irrigation	Not assessed
Industrial Water Supply	water used for industrial purposes	Not assessed

**Human Health:** There are several data sources taken into consideration for standards development for human health. Ohio explains the linkage of water chemistry, fish tissue contaminants, and Fish Consumption Advisories (FCAs) in Section E2 of the 2010 IR. WQS are based on the quantity of chemicals in water, but because the chemicals are known to bioaccumulate in fish, chemical measurements in fish tissue are taken into account for WQS development and for listing. A FCA advises the amount of fish from those waters that may safely be consumed and still protect human health.

Under certain conditions, the FCA may contribute information toward whether a waterbody is listed, but listing is not based solely on that waterbody having a FCA. Ohio states: "If the State has issued an advisory...and that advisory is equal to or less protective than the State's WQS, then one can assume there is an exceedance of the WQS...if the advisory is more protective than

the WQS, one cannot assume that the issuance of the advisory indicates an exceedance of the WQS.” (See Figure E-1 below.)

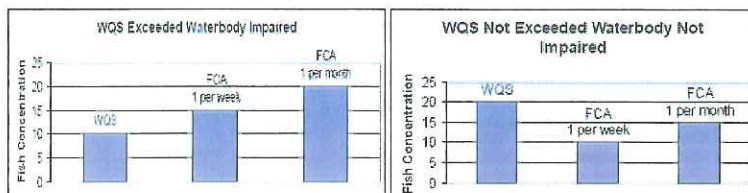


Figure E-1. Illustration of the relationship among the WQS values, the values that trigger issuance of FCAs and the resulting decision regarding waterbody impairment associated with an FCA.

In Sections E2 and E4 of the 2010 IR, Ohio completes the rationale and methodology of the linkages of water chemistry, fish tissue contaminants, and FCA for putting waters on the 303(d) list. Note in the second column below in Table E-1, the *Fish concentration on which WQS is based* links the WQS and fish tissue measurements in Section E4. Ohio states: “The information used to calculate the...WQS criterion can be used to calculate a maximum safe fish concentration. The fish concentration value can then be directly compared to the FCA program values to determine whether the advisory is less or more protective than the WQS criterion.”

Table E-1. Comparison between fish concentration values and FCA program values.

Basin / Parameter	Fish concentration on which the WQS is based <sup>1</sup>	Range of fish concentrations triggering an “eat no more than one meal per week” advisory	Range of fish concentrations triggering an “eat no more than one meal per month” advisory
Lake Erie / PCB	23 µg/kg	50 - 220 µg/kg	221 - 1,000 µg/kg
Ohio River / PCB	54 µg/kg	50 - 220 µg/kg	221 - 1,000 µg/kg
Lake Erie / mercury	350 µg/kg	110 - 220 µg/kg	221 - 1,000 µg/kg
Ohio River / mercury	1,000 µg/kg	110 - 220 µg/kg	221 - 1,000 µg/kg
Lake Erie / DDT	140 µg/kg	500 - 2,188 µg/kg	2,189 - 9,459 µg/kg
Ohio River / DDT	320 µg/kg	500 - 2,188 µg/kg	2,189 - 9,459 µg/kg
Lake Erie / Chlordane	130 µg/kg	500 - 2,188 µg/kg	2,189 - 9,459 µg/kg
Ohio River / Chlordane	310 µg/kg	500 - 2,188 µg/kg	2,189 - 9,459 µg/kg
Lake Erie / Hexachlorobenzene	29 µg/kg	800 - 3,499 µg/kg	3,500 - 15,099 µg/kg
Ohio River / hexachlorobenzene	67 µg/kg	800 - 3,499 µg/kg	3,500 - 15,099 µg/kg
Lake Erie / mirex	88 µg/kg	200 - 674 µg/kg	675 - 3,763 µg/kg
Ohio River / mirex	200 µg/kg	200 - 674 µg/kg	675 - 3,763 µg/kg

Values	Advisory is less protective than the WQS criterion, WQS exceeded, waterbody impaired
Values	Advisory is more protective than WQS criterion, WQS not exceeded, no impairment from FCA
Values	Advisory may be more, or less, protective than WQS criterion

<sup>1</sup> See Section E4 for an explanation of how these concentrations were calculated.

**Recreation:** Ohio water quality standards state that Ohio may also designate a water body for recreational use (OAC 3745-1-07(A)(1)). Under the Ohio Administrative Code, recreational designations are in effect from May to mid-October (OAC 3745-1-07(B)(4)). Table F-1 below is shown below and describes the methodology (geometric mean rather than percentile) and the indicator (transition from fecal to E. coli) that has changed in this listing cycle. For bathing waters, the geometric mean E. coli content shall not exceed 126 cfu per 100 ml in the recreational season and shall not exceed 235 cfu per 100 ml in a single sample; for contact recreation, there is not a single sample maximum criterion. Note Table 7-13 within Table F-1 from OAC 3745-1-07 shows numeric criteria for several new classifications of recreational contact based on intensity of use.



Table F-4. Summary of the recreation use assessment methods.

Bathing Waters		
Indicator	Criterion (Table 7-13, OAC 3745-1-07)	Assessment Method Summary
E. coli	Seasonal geometric mean E. coli content* based on samples from the recreation season within a calendar year is 126 cfu/100 ml; single sample maximum is 235 cfu/100 ml.	Applied to the three Lake Erie shoreline assessment units, exceedance of the geometric mean bathing water criterion or an exceedance of the single sample maximum for more than 10% of the recreation season is considered an impairment of the bathing water use.
Primary Contact and Secondary Contact		
Indicator	Criterion (Table 7-13, OAC 3745-1-07)	Assessment Method Summary
E. coli	Seasonal geometric mean E. coli content* based on samples from the recreation season within a calendar year is:  Primary Contact Waters Class A: 126 cfu/100 ml Class B: 161 cfu/100 ml Class C: 206 cfu/100 ml Secondary Contact Waters 1030 cfu/100 ml	Applied to streams and inland lakes. Data from a recreation season are assessed on a site-by-site basis and compared to the applicable geometric mean E. coli criterion whenever more than one sample result is available for a watershed assessment unit. Assessment units are considered to be in full attainment if all sites assessed within the assessment unit meet the applicable geometric mean criterion and in non-attainment if one or more sites assessed within the assessment unit exceed the applicable geometric mean criterion.

\* E. coli concentrations are expressed in colony forming units (cfu) per 100 milliliters (ml)

**Aquatic life use:** Ohio's standards contain numeric biological criteria that describe the expected biological performance of Ohio's wadeable and boatable rivers and streams. Ohio EPA uses the numeric biological criteria to interpret the data generated when a biological assessment of a stream is conducted (OAC 3745-1-07(A)(6)). Through a use attainability analysis, a given stream reach may be assigned an appropriate aquatic life use. Biological sampling is conducted to establish attainment status, with further subclassification based on ecoregion and size of waterbody. Ohio uses evidence from physical habitat surveys that include the characteristics of the stream that are critical to supporting aquatic life: 1) substrate, 2) in-stream cover, 3) channel morphology, 4) riparian zone and bank erosion, 5) pool/glide and riffle/run quality, and 6) gradient. Target scores are compared with the existing scores and a percentage deviation from the target is calculated.

Although chemical and physical data are collected as part of Ohio EPA's comprehensive watershed evaluations, the performance of the fish and macroinvertebrate communities is used to determine attainment status. Section G discusses the biosurveys that measure performance. For a sampling site to be classified as being in full attainment it must meet the relevant criteria in three indices: Index of Biotic Integrity (IBI) (fish); the Modified Index of Well-being (MIWb) (fish); and, the Invertebrate Community Index (ICI) (OEPA 1999). Biocriteria are codified in Ohio's water quality standards (OAC 3746-1-07, Table 7-15). The physical scores and community scores are then combined to determine whether there is impairment or attainment.

**Public water supply:** Ohio's water quality standards state that Ohio may also designate a water body for water supply use (OAC 3745-1-07(A)(1)). Ohio has three water supply uses: public, agricultural, and industrial. A public water supply is a water that with conventional treatment will be suitable for human intake and meet federal regulations for drinking water (OAC 3745-1-07(B)(3)(a)).

Section H in the 2010 Integrated Report summarizes the Public Drinking Water Supply Methodology using nitrate and pesticides as indicators. Water quality data were compared to the numeric chemical water quality criteria for the protection of human health (OAC 3745-1-33 and 34). The water quality criteria are:



- 1) Nitrate is 10 mg/L, directly corresponding to the Safe Drinking Water Act Maximum Contamination Limit (MCL);
- 2) Atrazine T 3.0 µg/l; and,
- 3) *Cryptosporidium* water quality criteria are being developed, but if the annual average exceeds 1.0 oocysts/L the water is considered impaired. This value will likely be adopted as a water quality criterion before the next listing cycle.

Criteria for pesticides were applied using annual averages of quarterly averages. Nitrate concentrations will use a maximum value because at elevated levels, nitrate can cause acute health effects, and many nitrate samples exceeded minimum recommended sample counts. The waters were then determined to be in full support, impaired, not assessed, or put on a "watch list", i.e., targeted for additional monitoring and assessment. Table H-1 on the following page, from the 2010 Integrated Report, summarizes Public Drinking Water Supply impairment determination.

Table H-1. Public drinking water supply impairment determination.  
Applies to in-stream ambient and treated water quality data for the most recent five year period.

Indicator	Impaired Conditions
Nitrate	<input type="checkbox"/> Two or more excursions <sup>1</sup> above the WQ criteria within the 5 year period
Pesticides	<input type="checkbox"/> Annual average exceeds WQ criteria
Other Contaminants	<input type="checkbox"/> Annual average exceeds WQ criteria
<i>Cryptosporidium</i> <sup>2</sup>	<input type="checkbox"/> Annual average exceeds WQ criterion (1.0 oocysts/L)
Indicator	Full Attainment Conditions
Nitrate	<input type="checkbox"/> No more than one excursion <sup>1</sup> above the WQ criteria within the 5 year period
Pesticides	<input type="checkbox"/> Annual average does not exceed the WQ criteria
Other Contaminants	<input type="checkbox"/> Annual average does not exceed the WQ criteria
<i>Cryptosporidium</i>	<input type="checkbox"/> Annual average does not exceed the WQ criterion
Indicator	"Watch List" Conditions Source waters targeted for additional monitoring and assessment
Nitrate	<input type="checkbox"/> Maximum instantaneous value > 8 mg/L (80% of WQ criterion)
Pesticides	<input type="checkbox"/> Running quarterly average > WQ criteria <input type="checkbox"/> Maximum instantaneous value > 4x WQ criteria
Other Contaminants	<input type="checkbox"/> Maximum instantaneous value > WQ criteria
<i>Cryptosporidium</i>	<input type="checkbox"/> Annual average > 0.075 oocysts/L

<sup>1</sup> Excursions must be at least 30 days apart in order to capture separate or extended source water quality events.

<sup>2</sup> Impaired conditions for *Cryptosporidium* are based on proposed water quality criteria which Ohio EPA intends to develop.

WQ Criteria - Water Quality Criteria defined in OAC Chapter 3745-1 established to protect in-stream water quality for the PWS beneficial use (Human health - Drinking Water)

**Wetlands:** Section I of the 2010 IR discusses wetland evaluation. In 1998, Ohio established wetland water quality standards. These standards include provisions for wetland use designation, narrative criteria, numeric criteria for dischargers to wetlands, and antidegradation. All wetlands receive the "wetlands" use designation under OAC 3745-1-53. Narrative criteria have been codified which protect the functional and recreational aspects of designated wetlands. Ohio has a wetland antidegradation rule, OAC 3745-1-54 which categorized wetlands based on the wetlands relative functions and values, sensitivity to disturbance, rarity, and potential to be adequately compensated for by wetland mitigation. Recent reports include studies of: 1) use of wetland invertebrates as indicators; 2) Ohio wetland mitigation banks; 3) condition assessment of wetlands in the Cuyahoga River watershed; and, 4) condition and function of urban wetlands. There was also a grant to study selected mitigation wetlands around the state to compare with natural wetlands. Future studies will include associations between stream and wetland conditions and will be incorporated into future TMDL analysis of a watershed.

Ohio proposed methodology is to: 1) identify historic wetlands using existing land cover databases; 2) identify existing wetlands resources through use of wetland inventory data and compare existing to historical wetlands; 3) perform preliminary wetland assessment using ten metrics, resulting in poor to excellent classification scale; 4) identify OEPA Wetlands Ecology Group's past wetland assessment; and, 5) review of site studies completed under the Wetland Development Grant.

**Inland lakes and reservoirs:** Ohio Water Quality Standards for inland lakes are being revised and Ohio is planning to have lake nutrient water quality criteria for the 2012 IR. Ohio is monitoring 5 to 10 lakes per year, and is prioritizing sites, determining sampling events and water quality parameters. Ohio currently has no biocriteria for lakes, only for rivers and streams. All lakes in Ohio are designated as Exceptional Warmwater Habitat (EWH) for ALU, but will change to Lake Habitat (LH) when the standards are revised. The numeric criteria to protect the LH use will remain the same as the criteria to protect the EWH use, but will include nutrient criteria. Further, future lake assessment will likely include Harmful Algal Blooms (HAB) and cyanotoxins. Cyanobacteria are blue-green algae that are capable of producing cyanotoxins that affect the skin, liver or nervous system. These algae can also cause decreased water quality associated with excessive biomass production. Literature indicates that increases in cyanotoxins are a significant hazard for human health and ecosystem viability. Ammonia, Chlorophyll a, dissolved oxygen, nitrogen, pH, phosphorus, Secchi disk and temperature criteria are being proposed and listed in Table I-1 below.

Table I-1. Proposed Lake Habitat use criteria.  
Note: All criteria are outside mixing zone averages unless specified differently.

Parameter Lake type	Form <sup>1</sup>	Units <sup>2</sup>	Statewide criteria	Ecoregional criteria				
				ECBP	EOLP	HELP	IP	WAP
Ammonia	T	mg/l	Table 43-4	--	--	--	--	--
Chlorophyll a <sup>3</sup>								
Dugout lakes	T	µg/l	6.0	--	--	--	--	--
Impoundments	T	µg/l	--	14.0	14.0	14.0	14.0	6.2
Natural lakes	T	µg/l	14.0	--	--	--	--	--
Upground reservoirs	T	µg/l	6.0	--	--	--	--	--
Dissolved oxygen <sup>4</sup>								
All lake types	T	mg/l	5.0 OMZM 6.0 OMZA	--	--	--	--	--
Nitrogen <sup>5</sup>								
Dugout lakes	T	µg/l	450	--	--	--	--	--
Impoundments	T	µg/l	--	930	740	930	688	350
Natural lakes	T	µg/l	638	--	--	--	--	--
Upground reservoirs	T	µg/l	1,225	--	--	--	--	--
pH								
All lake types	--	s.u.	A	--	--	--	--	--
Phosphorus <sup>6</sup>								
Dugout lakes	T	µg/l	18	--	--	--	--	--
Impoundments	T	µg/l	--	34	34	34	34	14
Natural lakes	T	µg/l	34	--	--	--	--	--
Upground reservoirs	T	µg/l	18	--	--	--	--	--
Secchi disk transparency <sup>7</sup>								
Dugout lakes	--	m	2.60	--	--	--	--	--
Impoundments	--	m	--	1.19	1.19	1.19	1.19	2.16
Natural lakes	--	m	1.19	--	--	--	--	--
Upground reservoirs	--	m	2.60	--	--	--	--	--
Temperature								
All lake types	--	--	B	--	--	--	--	--

<sup>1</sup> T = total

<sup>2</sup> m = meters; mg/l = milligrams per liter (parts per million); µg/l = micrograms per liter (parts per billion); s.u. = standard units

<sup>3</sup> These criteria apply as lake medians from May through October in the epilimnion of stratified lakes and throughout the water column in unstratified lakes.

<sup>4</sup> For dissolved oxygen, OMZM means outside mixing zone minimum and OMZA means outside mixing zone minimum twenty-four-hour average. The dissolved oxygen criteria apply in the epilimnion of stratified lakes and throughout the water column in unstratified lakes.

<sup>5</sup> These criteria apply as minimum values from May through October.

<sup>6</sup> pH is to be 6.5-9.0, with no change within that range attributable to human-induced conditions.

<sup>7</sup> At no time shall the water temperature exceed the average or maximum temperature that would occur if there were no temperature change attributable to human activities.



### Removal of Waters from the 303(d) List

Section M of the 2010 IR describes the delisting of waters from the 2008 303(d) list. The State has demonstrated good cause for not including certain waters that were previously listed on Ohio's 2008 303(d) list. As provided in 40 C.F.R. § 130.7(b)(6)(iv), U.S. EPA requested that the State demonstrate good cause for not including these waters on its 2010 Section 303(d) list. The State lists six reasons for delisting from Category 5, shown below in green. Section M of the 2010 IR is incorporated by reference and shows the delisting of waters, causes for the delisting, and the comparison to the 2008 IR list for each change.

- Codes used in delisting columns:

T	Delist, TMDL completed
D	Delist, new data
M	Delist, methodology change
MD	Delist, both new data and methodology change
U	Delist, change to listing by use
U+	Delist, change to listing by use, plus data and/or methodology
new D	New listing due to data
new M	New listing due to change in methodology
new MD	New listing due to data and methodology
none	No delisting

Previously listed waters are in tables throughout the document based on use. Because of the new methodology, the tables are too numerous and lengthy to copy, so a reference table is provided below of relevant tables to be incorporated by reference. The table also includes waters added to the list as part of new listing for lakes and public water supply and sometimes have combined attainment and non attainment within the table.

Reference Table.

Use	Section & table	Title of table
Human health	E-4	Waters impaired because levels of PCBs or mercury in fish tissue exceed the threshold level upon which the WQS criterion is based
	E-5	Waters impaired because fish tissue levels of PCBs or mercury are below the threshold level upon which the WQS criterion is based
	E-6	Waters not impaired because fish tissue levels of PCBs or mercury in fish are below the threshold level upon which the WQS criterion is based, and which were categorized as impaired in the 2008 Integrated Report
	E-7	Waters with contaminants that affect fish tissue, not included in Table E-2 for these pollutants (included on the 303(d) list)
	E-8	Waters for which the existing impaired status cannot be confirmed because data have become historical and not enough new data are available
	E-9	Waters with current fish tissue data where inadequate samples exist to determine impairment status
	E-10	Inland lakes and their impairment status
Recreation	F-5	Seasonal geometric mean E. coli levels at Ohio's 23 public beaches along Lake Erie (table includes impaired and not impaired)
	F-11	Summary assessment status of the recreation use in Ohio's LRAUs
	F-12	Summary assessment status of the recreation use for inland lakes
Public Drinking Water Supply	H-2	Waters designated as impaired for PDWS beneficial use
	H-3	Summary of public drinking water supply assessment results for the nitrate and pesticide indicators (Impaired/full support/ insufficient data/watch list/unknown)

### -Waters Meeting Water Quality Standards

The State's decision not to include some AUs on its 2010 Section 303(d) list, shown in Section M, is consistent with EPA regulations at 40 CFR 130.7(b)(6)(iv). Under 40 CFR 130.7(b)(6)(iv), States are not required to list if they meet water quality standards based on more recent data. These waters were identified on the State's 2008 Section 303(d) list, due to methodology change, use attainment or new data (Category 1).

### -Waters Removed Based on TMDL Approval

The State's decision not to include AUs on its 2010 Section 303(d) list is consistent with EPA regulations at 40 CFR 130.7(b)(6)(iv). Under 40 CFR 130.7(b)(6)(iv), States are not required to list waters if all impairments are addressed in the approved TMDL. These waters were identified on the State's 2010 Section 303(d) list in Section L, and in Section M showing comparison of the 2008 IR to the 2010 IR as Category 4A. Tables J-5, J-6 and J-7 below show the overall change in delisting status and total changes based on designated use for WAUs, LRAUs, and LEAUs, respectively. Table J-9 is incorporated by reference and lists Ohio's approved TMDLs.

Table J-5. Delisting status of watershed assessment units.

	Number of assessment units				
	HH	R	ALU	PDWS	Totals
<b>Delistings</b>					
Use is being met					
New data	11	11	52	0	74
Methodology: change varies by use	33	262	46	0	343
Methodology and new data	18	0	0	0	18
Methodology: listing by use	593	377	236	873	2079
Methodology: listing by use, method, data	29	113	40	283	465
Flaw in original listing	0	0	0	0	0
TMDL completed	0	124	135	0	259
<b>New listings</b>					
New data	10	40	15	0	65
New methodology	35	14	0	0	49
New data/methodology	11	0	0	0	11
<b>Not delisted: change in use status from 2008 to 2010</b>					
Use not impaired	9	79	26	102	216
Use impaired	0	129	12	4	145
<b>Not delisted: no change in use status from 2008 to 2010</b>					
Use not impaired	348	247	338	275	1208
Use impaired	441	142	636	1	1220
	1538	1538	1538	1538	6152

Table J-6. Delisting status of large river assessment units.

	Number of assessment units				
	HH	R	ALU	PDWS	Totals
<b>Delistings</b>					
Use is being met					
New data	0	0	0	1	1
New methodology: varies by use	1	10	6	1	18
New methodology and new data	0	0	2	0	2
New methodology: listing by use	2	4	8	20	34
New methodology: listing by use, method, data	0	10	2	6	18
Flaw in original listing	0	0	0	1	1
TMDL completed	0	0	1	0	1
<b>New listings</b>					
New data	1	1	0	0	2
New methodology	0	0	0	0	0
New data/methodology	0	0	0	0	0
<b>Not delisted: change in use status from 2008 to 2010</b>					
Use not impaired	0	2	0	0	2
Use impaired	0	7	0	0	7
<b>Not delisted: no change in use status from 2008 to 2010</b>					
Use not impaired	2	0	4	6	12
Use impaired	32	4	15	3	54
	38	38	38	38	152



Table J-7. Delisting status of Lake Erie nearshore assessment units.

	Number of assessment units				
	HH	R	ALU	PDWS	Totals
<b>Delistings</b>					
Use is being met					
New data	0	0	0	0	0
New methodology: varies by use	0	0	0	0	0
New methodology and new data	0	0	0	0	0
New methodology: listing by use	0	1	0	3	4
New methodology: listing by use, method, data	0	0	0	0	0
Flaw in original listing	0	0	0	0	0
TMDL completed	0	0	0	0	0
<b>New listings</b>					
New data	0	0	0	0	0
New methodology	0	0	0	0	0
New data/methodology	0	0	0	0	0
<b>Not delisted: change in use status from 2008 to 2010</b>					
Use not impaired	0	0	0	0	0
Use impaired	0	0	0	0	0
<b>Not delisted: no change in use status from 2008 to 2010</b>					
Use not impaired	0	0	0	0	0
Use impaired	3	2	3	0	8
	3	3	3	3	12

**Waters Subject to Other Pollution Control Requirements Stringent Enough to Implement any Water Quality Standards, 40 CFR 130.7(b)(1)(iii)**

Under 40 C.F.R. 130.7(b)(1), States are not required to list WQLSs still requiring TMDLs where effluent limitations required by the CWA, more stringent effluent limitations required by State or local authority, or other pollution control requirements required by state, local, or federal authority, are stringent enough to implement applicable water quality standards. The regulation does not specify the time frame in which these various requirements must implement applicable water quality standards to support a State's decision not to list particular waters.

Monitoring should be scheduled for these waters to verify that the water quality standard is attained as expected in a reasonable time frame. Where standards will not be attained through implementation of the requirements listed in 40 C.F.R. 130.7(b)(1) in a reasonable time, it is appropriate for the water to remain on the Section 303(d) list to ensure that implementation of the required controls and progress towards compliance with applicable standards is tracked. If it is determined that the water is, in fact, meeting applicable standards when the next Section 303(d) list is developed, it would be appropriate for the State to remove the water from the list at that time.

**Public Participation and Comments on Listing Decisions**

The State's public participation process for the 2010 Integrated Report has been extensive. In July, 2009, a mailing was sent to all Level 3 qualified data collectors, including major NPDES discharge permit holders, those who had formerly submitted data, and Level 3 for chemical, biological and/or physical data. (Section D5.1 in the 2010 IR). On December 18, 2009, the State continued its public participation by posting an announcement of its draft of the 2010 Integrated Report available on its public website (Section D5.2 of the 2010 IR), including instructions for printed copy requests. The formal comment period for the 2010 Integrated Report was from December 18, 2009 to February 8, 2010. The Notice is included in the 2010 Integrated Report at

Section D5.3. Public comments received and Ohio EPA's responses are included in Section D.6; responses to U.S. EPA comments are addressed or incorporated into the document.

During the public comment period the State received many comments, including those that expressed concerns about several topics, including the increasing algae and nutrients in Lake Erie and major tributary contributions to the increases, greater participation of watershed groups, prioritization of drinking water areas, and the health of freshwater mussels for future analysis. The State responded to all of the public comments and addressed its decisions to not consider certain data, or list certain waterbodies on its 2010 Section 303(d) list. Some of the comments resulted in changes to the text in the final 2010 Integrated Report. The State has adequately addressed comments received and has demonstrated, to U.S. EPA's satisfaction, good cause for its listing decisions in the 2010 Section 303(d) list.

### **Priority Ranking and Targeting**

U.S. EPA also reviewed the State's priority ranking of listed waters for TMDL development, and concludes that the State properly took into account the severity of pollution and the uses to be made of such waters, as well as other relevant factors such as status of recreation use, and the status of aquatic life. For near shore watershed areas of Lake Erie the waterbodies were assigned the same priority as the surrounding contiguous watersheds. Ohio defers to the U.S. EPA for prioritization of open waters of Lake Erie and to ORSANCO for the Ohio River. These waterbodies have low priority ranking for Ohio EPA initiated action, not indicating a low priority related to other relevant factors.

For the remaining waters on Category 5 of the Integrated Report the State used a point system to determine the priority ranking of the AUs. Ohio EPA developed a point system totaling a maximum of 20 possible points (1 being the lowest priority and 20 being the highest priority, including categories of assigned points and extra points). The points were distributed as follows, and can be found in Section J2 and Table J-4 of the 2010 Integrated Report.

Table J-4. Priority points for impaired assessment units.

Points		Condition	# Assessment Units WAUs   LRAUs	
Human Health Use impairment (fish tissue contaminants) (maximum of 3 points)				
2		Listed as impaired for Fish Contaminants (Human Health Use)	503	33
+ 1		Additional point in assessment units that have greater than 500 parts per billion PCBs or mercury	14	6
Recreation Use impairment (maximum of 6 points)				
1		Listed as impaired, with assessment unit score <sup>1</sup> between 0 and 25	27	1
2		Listed as impaired, with assessment unit score <sup>1</sup> between 25.1 and 100	49	8
3		Listed as impaired, with assessment unit score <sup>1</sup> between 25.1 and 50	105	0
4		Listed as impaired, with assessment unit score <sup>1</sup> between 50.1 and 75	144	3
+ 2		Additional points if assessment unit contains Class A waters	60	12
Aquatic Life Use impairment (maximum of 4 points)				
1		Listed as impaired, with assessment unit score <sup>1</sup> between 0 and 25	260	4
2		Listed as impaired, with assessment unit score <sup>1</sup> between 25.1 and 100	102	8
3		Listed as impaired, with assessment unit score <sup>1</sup> between 25.1 and 50	135	2
4		Listed as impaired, with assessment unit score <sup>1</sup> between 50.1 and 75	168	1
Public Drinking Water Use impairment (maximum of 7 points)				
5		Listed as impaired for Public Drinking Water Use for one indicator	4	3
+ 2		Additional points in assessment units impaired for second indicator	0	1
1		Not listed as impaired, but on watch list; one point for each indicator	30	5

<sup>1</sup> The assessment unit score is reported on the summary sheets in Section L.



In addition, U.S. EPA reviewed the State's identification of WQLSs targeted for TMDL development in the next two years, and concludes that the targeted waters are appropriate for TMDL development in this time frame. Ohio considered various factors in developing both the long term and short term schedule.

Ohio builds on programmatic strengths in monitoring, modeling, permitting, and nonpoint source incentives to develop an integrated approach to TMDLs that aligns program goals and resources efficiently. Ohio also has an active stakeholder process for developing TMDLs. Ohio works on collecting data through the five-year rotating basin plans. Ohio's ALU data are valid for up to ten years for evaluating assessment units, so each AU must be monitored at least once every ten years. Each AU is assigned to one of the next two monitoring cycles using the following criteria: Ohio EPA's five-year Basin Monitoring Strategy; time since most recent assessment; distribution of work effort among Ohio EPA district offices; priority ranking; and TMDL schedule. Ohio has generated its long-term TMDL schedule based on the following criteria: local interest; funding; and partnership potential. Some flexibility remains in long-term scheduling because it is difficult to predict these variables.

Table J-10 in Section J of the 2010 Integrated Report is the short-term schedule for TMDL Development and is hereby incorporated by reference.

### **Long term schedule**

U.S. EPA has received Ohio's long-term schedule for TMDL development for all waters on the State's 2010 Integrated Report for Category 5 waters (Section L). As a policy matter, U.S. EPA has requested that states provide such schedules.<sup>2</sup> Ohio has provided information for the long term schedule in Section J4.2 of the 2010 IR. Ohio states that the five-year basin approach provides the foundation for most monitoring, and aquatic life use monitoring data up to ten years old are valid. However, resources are decreasing so cycling through the entire basin rotation would take about 15 to 20 years at current resource levels. Therefore the AUs are assigned to one of the three cycles based on the five-year basin approach, the time since last assessment, workload distribution among OEPA district offices, priority ranking, and the TMDL schedule. U.S. EPA is not taking any action to approve or disapprove this schedule pursuant to Section 303(d).

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<sup>2</sup> See Memorandum from Robert Perciasepe, Assistant Administrator for Water, to Regional Administrators and Regional Water Division Directors, "New Policies for Developing and Implementing TMDLs", August 8, 1997.

## **References**

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